***Remarks***

Claims 1-6, 8-17, 19-21 and 24-65 are presently pending in the instant application. Claims 1 and 21 have been amended. Claim 32 has been cancelled. Support for the amendments to the claims can be found in the instant claims. Claim 32 has been incorporated into claim 1, and claim 21 is dependent on claim 20.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claim 21 under 35 U.S.C. 112, second paragraph. Claim 21 has been amended to comply with the Examiner's instructions.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-6, 8-12, 14-17, 19-21 and 24-49 under 35 U.S.C. 103(a) as being unpatentable over Russ et al (US 5,366,614) in view of Sughrue et al. (US 6,254,766).

Russ discloses a reforming process in which a hydrocarbon feedstock is contacted with a mixture of a reforming catalyst and a sulfur sorbent (See Russ, col. 4, lines 10-14). The catalyst contains an L-zeolite and a platinum group metal, and the sorbent comprises a manganese component (See Russ, col. 4, lines 14-16). The Russ reference also states "The hydrocarbon feedstock to the present process contains small amounts of sulfur compounds, amounting to generally less than 10 parts per million (ppm) on an elemental basis." (See Russ, col. 5, lines 3-6) Generally, the feedstock is pretreated so that most of the sulfur compounds are removed (See Russ, col. 5, lines 6-12).

Sughrue discloses the desulfurization of cracked gasoline or diesel fuel with a sorbent that contains reduced nickel (See Sughrue, col. 7, lines 1-3). Sughrue

also states "The amount of sulfur in cracked-gasolines or diesel fuels can range from about 100 parts per million sulfur by weight of the gaseous cracked gasoline to about 10,000 parts per million sulfur by weight of the gaseous cracked-gasoline and from about 100 parts per million to about 50,000 parts per million for diesel fuel prior to the treatment of such fluids with the sorbent system of the present invention." (See Sughrue, col. 8, lines 35-41).

The Examiner states "It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Russ by utilizing the sorbent of Sughrue in place of the sorbent disclosed by Russ because the sorbent is effective at desulfurizing the feed streams of Russ with minimal impact on the octane of the feed stream . . ." (*See* Final Office Action, page 4, final paragraph through page 5, first paragraph).

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." *In re Ratti*, 123 USPQ 349 (CCPA 1959).

The Russ reference utilizes a hydrocarbon feedstock with less than 10 ppm sulfur. The Sughrue reference utilizes a feed with at least 100 ppm sulfur. In Russ, most of the sulfur in the feedstock is removed prior to the main reforming process in a pretreatment step. Therefore, there is not a large quantity of sulfur left to remove. The Sughrue reference discloses the removal of larger quantities of sulfur. The main purpose of the Russ reference is reforming, not to remove large quantities

of sulfur, since this has already been done in the pretreatment step. In addition, the Russ reference states: "This catalyst system has been found to be surprisingly effective, in comparison to the prior art in which the first reforming catalyst and sulfur sorbent are utilized in sequence, in removing sulfur from the hydrocarbon feedstock while effecting reforming with emphasis on dehydrocyclization." (See Russ, col. 6, lines 27-34). Therefore, the specific catalyst system disclosed in Russ is vital to the reforming process and it would be unclear how the Sughrue catalyst would affect it. For these reasons, there is no motivation to combine Sughrue with Russ, except through the use of impermissible hindsight.

The Examiner is respectfully requested to reconsider and withdraw the rejection of claim 13 under 35 U.S.C. 103(a) as being unpatentable over Russ et al. (US 5,366,614) in view of Sughrue et al. (US 6,254,766) and further in view of Dodwell (US 6,429,170).

Russ discloses a reforming process as stated above.

Sughrue discloses a desulfurization process as stated above.

Dodwell discloses a sorbent composition comprising zinc oxide, expanded perlite, alumina, and a substantially reduced promoter component (See Dodwell, col. 3, lines 26-35). As in Sughrue, Dodwell discloses the sorbent to be used in desulfurization of a feedstock with a range of 100 ppm to 10,000 ppm sulfur (for cracked gasoline) and 100 ppm to 50,000 ppm sulfur (for diesel fuel) (See Dodwell, col. 14, lines 63-67 to col.15, lines 1-5).

As stated above, there is no motivation to combine Sughrue with Russ. Since Dodwell also discloses a sulfur removal process to remove larger quantities of sulfur, there is also no motivation to combine Dodwell with Russ, for the reasons stated above.

***Response to Response to Arguments***

The Examiner states "the fact that the sorbent of Sughrue is effective in feeds containing at least 100 ppm of sulfur does not mean nor would it suggest that it is not effective in feeds containing less than 100 ppm of sulfur." (*see* Final Office Action, page 6, 2nd paragraph). Applicants respectfully point out that the feedstock in Russ is a feedstock to a reformer. Russ teaches that since sulfur adversely affects the reforming process, most of the sulfur in a feedstock needs to be removed before the reforming process takes place (*see* Russ, column 5, lines 6-16). The Examiner is suggesting the obviousness of utilizing the Sughrue sorbent in the Russ catalyst system for the reforming process (*see* Final Office Action, pages 4 and 5). Since the Sughrue sorbent is preferably used for feeds with at least 100 ppm sulfur, one of ordinary skill in the art would probably be more inclined to use it as an alternative to the pre-treatment step in Russ, where most of the sulfur is removed, as opposed to the reforming process itself.

The Examiner also states "since the sorbents of both Russ and Sughrue are effective for removing sulfur from a hydrocarbon, the Examiner asserts that there is a reasonable expectation of success for the process of Russ when one substitutes the

sorbent of Sughrue for the sorbent of Russ" (*see* Final Office Action, page 6, 3rd paragraph).

Applicants respectfully submit that the Examiner is applying an improper obvious to try rationale. The Russ reference does not disclose oxidation and reduction steps to regenerate and reactivate its catalyst system, nor does it disclose simultaneous steps of desulfurization, regeneration, and reduction, as required by amended claim1 in the instant application. Only the dehydrocyclization catalyst is regenerated in the Russ reference (*see* Russ, column 9, lines 47-57). Russ does not provide any indication that a catalyst and sulfur sorbent as a system could be successfully regenerated and subsequently reactivated.

In view of the foregoing amendments and remarks, claims 1-6, 8-17, 19-21, 24-31and 33-65 are believed to be in condition for allowance. Therefore, allowance of these claims is respectfully requested.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313-1450, on

8 March 2006
(Date)

Bronwyn A. Welvaert